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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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07/05/2001

Per Granestrand

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11/19/2003

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EXAMINER

FLORES RUIZ, DELMA R

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 11/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/898,018

Applicant(s)

GRANESTRAND ET AL.

Examiner

Delma R. Flores Ruiz

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 19-28 and 31-36.

2a) ☐ This action is **FINAL**.

2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 19-28 and 31-36 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 19-28 and 31-36 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.



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Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.

4) ☐ Interview Summary (PTO-413) Paper No(s). _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 19 – 28, 30, and 32 – 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parayanthal (6,542,533) in view of applicant's admitted prior art as show in Fig. 1 and detailed in the specification of further in view of Kitamura Shotaro (EP 0895, 326 A1).

Regarding claim 19 and 26 Parayanthal in view of the applicant's discloses an optical device having a back facet (see Fig. 3, Character 11) and a front facet (see Fig. 3, Character 21) opposite to each other, said device including; a laser (see Fig. 3, Character 10) adapted to emit light essentially perpendicular to said back facet (see Fig. 3, Character 11) a modulator (see Fig. 3, Character 20) having an input end and an

output end respectively, and adapter to receive and modulate light emitted from said laser and to output modulated light at said modulator output end; said modulator is bent such the modulated light output from said modulator is propagating essentially in a direction, which is angled with respect to the normal of said front facet; said device being further arranged such that modulated light output from said modulator is propagating essentially in a direction, which is angled with respect to the normal of said device front facet (see Fig. 3). Parayanthal discloses the claimed invention except for window region and modulator output is tapered. It would have been obvious at the time of applicant's invention, to combine Shotaro of teaching a window region and modulator output is tapered with optical device because the modulator is curved such that light emitted by laser along the axis and modulated by modulator during operation, is output into window region in a direction, which from an angle with respect to the normal of the device front facet. An upper limit is the angle for total reflection, which depends on the refractive index of the window region, the AR coating and the surrounding air. The geometrical consideration; the light will enter the window region at essentially the angle relative to the Z axis and the light reflected at the front facet will, due to this angle, to a great extent be deflected away from the waveguide output end. This will suppress the reflection from the front facet. A consequence of the tapering of the waveguide the light field at the output of the tapered region will be transversally expanded. The combination of a bent modulation and a tapered modulator output end is that less light

will be present in the angular distribution at the output of the tapered modulator end at angles that would to a great extent be reflected back into the modulator waveguide.

Regarding claim 20, Parayanthal in view of applicant's admitted prior art as show in Fig. 1 and detailed in the specification in view of further Shotaro discloses the angle between the propagation direction of the light and the normal of said front facet is at least 2° , preferably at least 5° , more preferably at least 8° , and most preferably around 8° (Column 3, Line 28 – 38, and 53 – 61).

Regarding claims 21 – 23, Parayanthal in view of the applicant's discloses the modulation output end section is between 10 and 1000 microns long, and preferably 20 and 50 microns long (Column 1, Lines 65 – 68, Column 2, Lines 1 – 8). Parayanthal in view of the applicant's discloses the claimed invention except for modulator output end is tapered. It would have been obvious at the time of applicant's invention, to combine Shotaro of teaching a modulator is tapered with optical device because a consequence of the tapering if the waveguide the light field at the output of the tapered region will be transversally expanded. The combination of a bent modulation and a tapered modulator output end is that less light will be present in the angular distribution at the output of the tapered modulator end at angles that would to a great extent be reflected back into the modulator waveguide.

Regarding claim 24, Parayanthal in view of the applicant's further in view of Shotaro disclose the front facet is provided an AR coating (see Fig. 3, Character 21, Column 1, Lines 55 – 68, Column 2, Lines 1 – 8, 63 – 68, and Column 3, Lines 62 – 68).

Regarding claim 25, Parayanthal in view of the applicant's further in view of Shotaro disclose the device is monolithically integrated semiconductor laser (See Fig. 3, Abstract, Column 1, Lines 26 – 28, and 40).

Regarding claims 27, 28, 32, 33 and 35, Parayanthal in view of the applicant's further in view of Shotaro disclose a modulator is angled with respect to the normal of said front facet a front facet is angled with respect to said back facet and front facet is angled with respect to said back facet such that said modulated light output from said optical device through said device front facet is parallel with the light emitted by said laser and with the normal of said back facet (see Fig. 3).

Regarding claims 34, and 36, Parayanthal in view of the applicant's further in view of Shotaro disclose a modulator is arranged diagonal in said optical device and angled from facet is dry etched (see Fig. 3).

Claim 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parayanthal (6,542,533) in view of applicant's admitted prior art as show in Fig. 1 and detailed in the specification further in view of Kitamura Shotaro (EP 0895, 326 A1) further in view of Ichikawa et al (4,070,681).

Regarding claim 31, Parayanthal in view of the applicant's further in view of Shotaro disclose the claimed invention except for modulator is bent to provide said angled direction of the modulated light. It would have been obvious at the time of applicant's invention, to combine Ichikawa of teaching a with modulator is bent to provide said angled direction of the modulated light because the laser beam from the modulator is bent in the vertical direction by a reflecting optical system and further bent in horizontal direction by a reflecting optical system or element so as to reach a beam expander system.

Response to Arguments

Applicant's arguments filed 8/25/2003 have been fully considered but they are not persuasive. Applicant's arguments with respect to claims 19 – 28 and 31 – 36 have been considered but are moot in view of the new ground(s) of rejection.

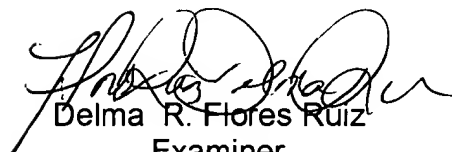
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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delma R. Flores Ruiz whose telephone number is (703) 308-6238. The examiner can normally be reached on M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3431.


Delma R. Flores Ruiz
Examiner
Art Unit 2828


Paul Ip
Supervisor Patent Examiner
Art Unit 2828

DRFR/PI
November 14, 2003